

Application No. 10/073,128
Page 7 of 9

REMARKS

Claims 1-11 are pending in the present application.

Claims 1-5 stand rejected under 35 U.S.C. § 102(e) as being anticipated by USPN 6,324,505 to Choy et al. Applicants respectfully traverse this rejection as follows.

Choy discloses the use of a voicing measure to classify the speech frame as voiced or unvoiced, and a suitable "amplitude spectrum" is defined depending on whether PWI or MBE or STC techniques are used. The Choy patent disclosure focuses on techniques for quantization of an "amplitude spectrum" for the voiced speech frames. The Choy patent then uses a voicing classification to determine the parameters for the quantization scheme. The Choy patent lacks any disclosure or suggestion of any such techniques for application to all frames.

The invention recited in independent claim 1 of the present application, however, employs a more sophisticated process covering all frames (both voiced and unvoiced). Specifically, claim 1 recites "quantize the PW multi-band mean plus deviations for all speech frames". The presently claimed invention, therefore, considers all frames in determining the voicing classification and quantization scheme. Again, Choy lacks any such disclosure or suggestion.

Moreover, the voicing measure used in Choy's patent is a fairly standard method based on measures of periodicity in the speech signal such as zero crossings, normalized autocorrelation coefficient, etc. The invention of the present application, however, uses a voicing measure not to derive a suitable "amplitude spectrum" but to change the manner in which the PW magnitude spectrum, which is represented in a PW mean plus deviations form, is quantized. For example, claim 1 recites:

compute a voicing measure, said voicing measure characterizing a degree of voicing of said input speech signal and is derived from several input parameters that are correlated to degrees of periodicity of the signal over the predetermined intervals;

provide for a voicing classification for the predetermined intervals based on the computed voicing measure; and

quantize the PW multi-band mean plus deviations for all speech frames in a magnitude domain using a hierarchical quantization method that employs fixed dimension vector quantizers (VQ) with parameters based on the voicing classification.

Application No. 10/073,128
Page 8 of 9

As recited here, the voicing measure of the claimed invention forms the basis for the voicing classification, which in turn controls the frequency of PW means quantization. Accordingly, the voicing measure controls the quantization. Choy lacks any disclosure of controlling the quantization based on the voicing measure as presently claimed.

The remainder of the pending claims (including new claims 12-15) depend from claim 1, and therefore, for at least the foregoing reasons, are allowable over the cited Choy patent.

Moreover, with regard to dependent claim 5 (and claims 6 and 8 and new claims 12-15 which depend therefrom) these claims recite

wherein the representation of the variable dimension PW is in fixed but unequal bands at each sub-interval, and the means are computed as a spectrally weighted average of the PW magnitude in each band and at each sub-interval.

Claim 5 and the claims depending therefrom thereby recite determination of the equivalent gain as a general multi-band representation, and computing the means in a spectrally weighted manner making it adaptive to the linear prediction spectra. In this regard, the Choy patent discloses application of its invention to an "amplitude spectrum" using a gain-shape approach where in the gain is first obtained as a 2-band mean representation. Choy, therefore, fails to anticipate dependent claim 5 or the remaining claims depending therefrom.

Applicants, therefore, respectfully submit that all pending claims are in condition for allowance and notice to this effect is respectfully requested.

Application No. 10/073,128
Page 9 of 9

No amendment made was related to the statutory requirements of patentability unless expressly stated herein; and no amendment made was for the purpose of narrowing the scope of any claim, unless Applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

If, however, the Examiner believes that there are any unresolved issues requiring adverse action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Craig Plastrik, at 301-601-7252, so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully Submitted,



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